

MAC-HD

REF. 4493

Standalone High-Definition Modulator → DVB-T

Multiple inputs: 2xCVBS . HDMI . HD-SDI



Contents

4	General safety instructions
4	Types of notices
4	Basic safety instructions
6	Introduction
6	General description
6	Main features
8	General use of the unit
9	Unit installation and configuration
9	Installation
9	Power supply connection
10	Inputs configuration
10	Cascade installation
11	Display Menus Quick-guide
12	Initial set-up
12	Advanced mode
12	General
13	Date and Time settings
12	Block LCD and joystick/control button
12	Restoring factory settings
13	Firmware updates
13	Settings
13	Configuration of INPUT signals
14	Configuration of carrier services
14	Configuration of OUTPUT signals
15	Network configuration
16	Unit status
16	Unit information
16	Unblocking the unit
17	USB PLAYBACK Function
19	Technical Specifications
21	Unit Maintenance, Warranty and Recycling
22	CE Certificate
23	Safety Instructions

General safety instructions

- Read this entire user manual carefully before plugging in the unit.
- Keep these instructions to hand during unit installation.
- Follow all the instructions and safety notices when handling the unit.

Types of notices

The safety notices used in this manual and their meanings are described below:



DANGER OF DEATH OR INJURY

This safety notice indicates a potential hazard to people's lives and/or health. Failure to follow these instructions can lead to severe health consequences and may even cause fatal injuries.

- Do not install the unit during electrical storms. This could lead to electro-static discharge from lightning.
- Do not open the unit. You may suffer an electric shock.



RISK OF DAMAGE TO THE UNIT

This safety notice indicates a potentially hazardous situation. Failure to follow these instructions may cause material damage to the unit.

- Keep the unit well-ventilated at all times. Install the unit in an area free of dust. Do not place the unit in a place where the ventilation slots may become blocked or obstructed.
Leave a distance of at least 20 cm all around the unit's sides. We recommend installing the unit in the VERTICAL position.
- Do not expose the unit to rain or moisture. Install in a dry location where potential leaks or condensation will not occur. In the event that liquid gets into the device, disconnect it immediately from the alternating current.
- Keep flammable objects, candles and anything that may cause a fire away from the unit.
- Connect the unit to an easily-accessible mains outlet, so that the unit can be quickly disconnected from the outlet in case of emergency.
- Do not expose the unit to sources of heat (sunlight, radiators, etc).



NOTE. Do not expose the unit to sources of heat (sunlight, radiators, etc).



DO NOT HANDLE ANY OF THE UNIT'S INTERNAL PARTS

This notice indicates that users should not handle any internal parts that could affect its working order or warranty.

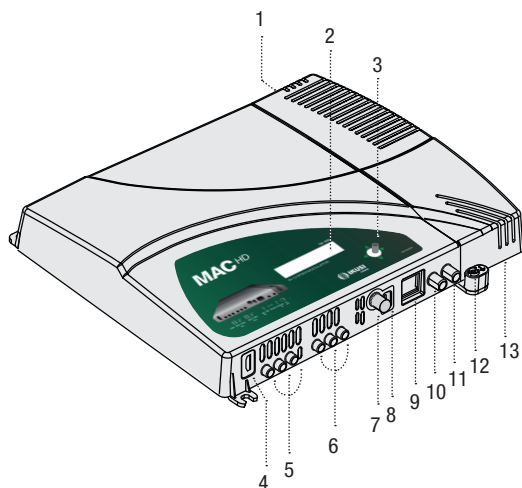


DO NOT DISPOSE OF UNIT AS NORMAL DOMESTIC URBAN WASTE

This type of notice indicates that the unit should not be disposed of as unselected domestic urban waste.

Introduction

General description



KEY

- 1 Mains connector
- 2 Display (LCD)
- 3 Control button 5-position joystick
- 4 HDMI input (for HD or SD channels)
- 5 AV 1 input
1 yellow RCA CVBS video, 1 white RCA and 1 red RCA for analogue audio (L, R)
- 6 AV 2 Input
1 yellow RCA CVBS video, 1 white RCA and 1 red RCA for analogue audio (L, R)
- 7 HD-SDI input (BNC) (for HD or SD channels)
- 8 USB connector
- 9 Ethernet connector (RJ-45)
- 10 TV Loopthrough input (F)
- 11 TV COFDM output (F)
- 12 Earthing
- 13 Removable power source

Main features

The MAC HD model is a standalone modulator that can process different Video and Audio signals, to form a high-definition COFDM channel.

The unit has various inputs:

- Two audio and analogue video channels, with 6 RCA connectors.
- One digital video and audio channel in HDMI format, with an HDMI connector.
- One digital video and audio channel in HD-SDI format, with a BNC connector.

This product is ideal for distributing video signals in residential installations, hotels, special buildings or video monitoring systems with digital COFDM digital TV modulation. The MAC HD unit also has a USB connector and includes new functions thanks to its evolving and upgradable software, such as: video playback from a USB memory stick, digital signage and other potential future developments.

Programming:

- User interface with LCD display and control button for basic configuration.
- User interface from web browser via Ethernet connection.
- All settings are automatically memorised.
- Re-programmable as many times as required.
- Firmware updated via Ethernet connection with web browser.
- Easy to configure.

Signal processing:

- CVBS video input and mono/stereo audio.
- HDMI input (does not process HDCP-encrypted signals).
- HD-SDI Input.
- Standard SD and HD quality signal.
- Supported colour encoding systems: PAL/SECAM/NTSC/B&W.
- RF DVB-T output, adjustable throughout the whole CATV band (45MHz-858MHz).
- Looptrough for combination of external RF TV signals.
- User interface with LCD and joystick connector.
- User interface with internet.
- USB interface.
- RTC to allow insertion of the TDT, TOT and EITs. To keep the date and time after shut-down, will use a supercapacitor that allows at least keep one days without food.

General use of the unit

The following sections describe how to operate the unit using the control button and how to interpret the visual prompts displayed on the LCD screen. The programme comprises a main menu made up of submenus that can be selected to modify the unit's basic operation settings.

Visual prompts on LCD screen



This symbol indicates that you can scroll vertically.

Vertical button movement



In the menus and submenus, you can move the button up or down to scroll upwards or downwards, one step at a time.

In the settings, move the button up or down to change the values, one step at a time.



NOTE. To browse or modify the values faster, keep the button pressed up or down.

Horizontal button movement



In the menus, you can move the button to the left or right to select or go back, one step at a time.

In the settings, move the button to the left or to the right to browse, select or go back, step by step.



NOTE. Too browse faster, keep the button pressed to the left or to the right.

Press button



In the menus, this selects the submenu.

In the submenus, this selects the settings.

In the settings, this selects the parameter value.

Unit installation and configuration

The LCD screen and the control button should suffice for the unit's basic settings. Follow the steps set out below to install the unit and configure the various parameters accessible from the user interface on the LCD display.

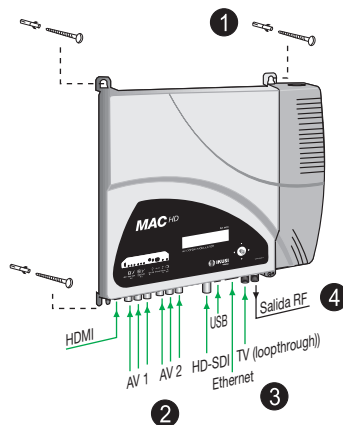
Installation



RISK OF DAMAGE TO THE UNIT

Mechanical handling of the unit whilst it is switched on can cause damage to it. Do not plug the unit into the mains before or during installation.

- 1) Secure the unit to the wall using 3 lag bolts/plugs (no supplied).
- 2) Connect the AV1 and AV2 inputs to the respective RCA connectors.
- 3) You may also connect the coaxial cable to the RF loopthrough input (connector F) or use any of the other available inputs (HDMI, HD-SDI).
- 4) Connect the coaxial cable from the output to the unit (connector F).



NOTE. We recommend installing the unit in a vertical position.

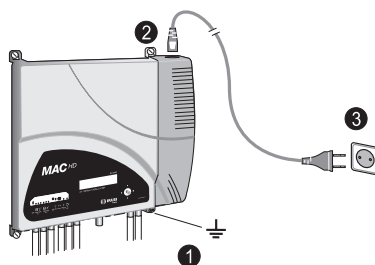
Power supply connection



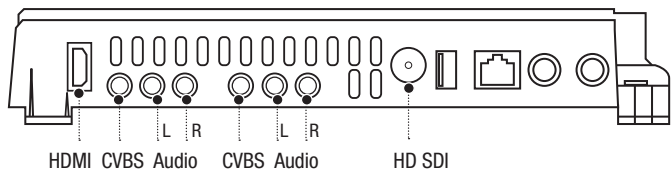
DANGER OF DEATH OR INJURY

Incorrect connection of the power supply can cause an electric shock. Follow the steps below to install the unit and connect it to the power supply.

- 1) Connect the earthing cable.
- 2) Connect the power plug to the unit's mains connector.
- 3) Connect the power plug to the mains power outlet.



Inputs configuration



5 Possible combinations :

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <ul style="list-style-type: none">• SD CVBS/Audio + SD CVBS/Audio• SD HDMI + SD CVBS/Audio• SD SDI + SD CVBS/Audio | 2 simultaneous SD channels |
| <ul style="list-style-type: none">• HD HDMI• HD SDI | 1 HD channel |

Cascade installation

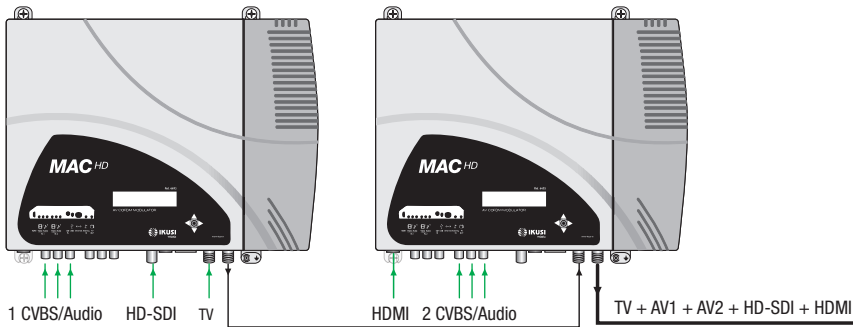
It is possible to daisy-chain various MAC-HD units together, to increase the service capacity. To do this, connect the RF output of the first unit to the TV input (loopthrough) of the second unit (see installation example).

For installations with 2 or more units, it is necessary identify each unit with a different TSID value, and to identify each service with different SID values as well.

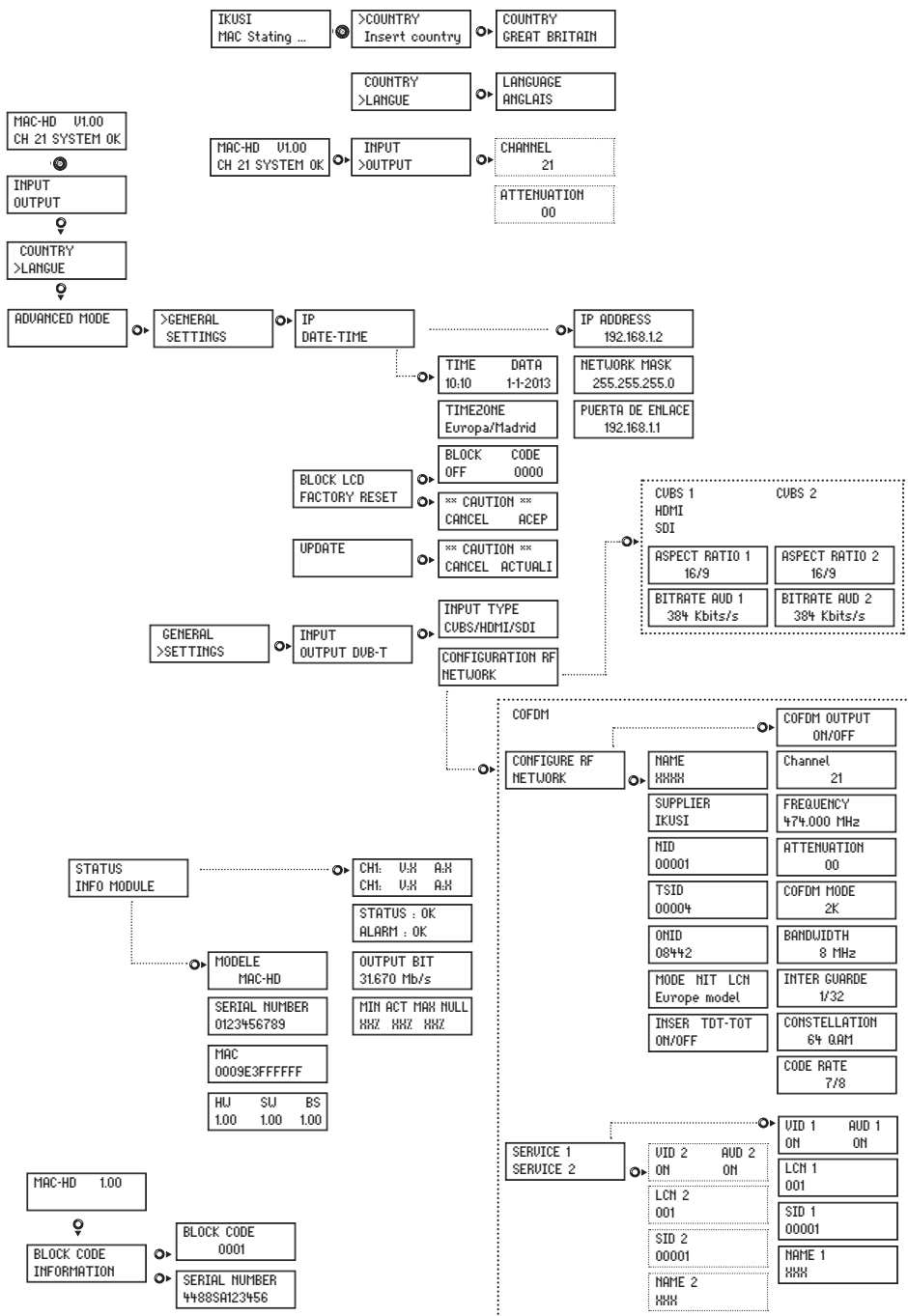
Configuring the TSID and SID values requires advanced configuration (see the Advanced unit configuration section).



NOTE. The advanced configuration process of the unit is explained in the “Web interface user manual”, available at <http://www.ikusi.tv>



Display menus Quick-guide



Initial set-up



NOTE. To enter a sequence of digits or characters on the screen, press “up” on the control button to change the value of the current digit or character, and move the control button horizontally to confirm/move between digit or character positions.

Place the cursor to the right of the current value and move the control button vertically, to increase or decrease the current value. Keep the control button pressed upwards or downwards to increase or decrease the current value faster.

- 1) Once the unit has been switched on, the start-screen will appear, asking you to enter the COUNTRY. Move the button to the right and the cursor will start flashing next to the first country. Press “down” on the button until the correct country is highlighted. Press “OK” to save.

* The unit will automatically adjust all other technical settings to match those of the country in question (see parameters table).

- 2) Scroll to the left, position the cursor on LANGUAGE, move the button to the right and locate the correct language by scrolling upwards or downwards. Press “OK” to save.
- 3) Scroll to the left until you reach the start-screen, which displays the model, firmware version, channel and status.

Status:

- SYSTEM OK = correct status.
- NO INPUT = no input signal detected
- SYSTEM NOK = incorrect status

Output channel change

- 1) From the start-screen, move the button to the right until you locate the **OUTPUT CHANNEL**; the cursor will start flashing next to the channel.
- 2) Scroll horizontally to change from digit position to position and vertically to change the value. Press “OK” to save.



>COUNTRY
GREAT BRITAIN



COUNTRY
>LANGUAGE



INPUT
>OUTPUT



OUTPUT CHANNEL
21



ATTENUATION
0.0 dB



MAC-HD 1.00
CH 21 SYSTEM OK



ADVANCED MODE

Advanced mode

From the start-screen, move once to the right and then down until you reach the **ADVANCED MODE** screen.

General

From the GENERAL screen, move the button to the right to access the following menus:

IP Settings

- 1) Locate and select the IP option.
 - a) Locate and select IP ADDRESS to establish the unit's IP number.
To enter a sequence of digits in the screen, move the control button vertically to change the current digit's value and horizontally to change between digit positions.
 - b) Locate and select SUBNET MASK. Enter the corresponding 12-digit sequence.



>GENERAL
SETTINGS



>IP
DATA-TIME



IP ADDRESS
192.168.001.006



NETWO MASKRK
255.255.255.000



GATEWAY
192.168.001.001

- c) Locate and select **GATEWAY**. Enter the 12-digit sequence corresponding to the IP address of the LAN gateway.

Date and Time settings

- 1) Locate and select **DATE-TIME**.
 - a) Locate and select **DATE-TIME** to set the time and date of the unit in the format hh:mm yyyy-mm-dd.
 - b) Locate and select **TIMEZONE** to select the time-zone of the country in question.

Block LCD and joystick/control button

- 1) Locate and select the **BLOCK LCD** option to block access to the unit's settings from the LCD display through the control button.
 - a) Activate (ON) or deactivate (OFF) the blocking option.
 - b) Set a code for unblocking the unit if this option has been activated. The code may be used to unblock the unit by means of the web browser interface.

Restoring factory settings

- 1) Locate and select **FACTORY SETTINGS** to restore the unit's factory settings.
 - a) Select the **ACCEPT** option to delete all the modifications made in the settings by the unit's installer or operator. Press "OK" to save. After a few seconds, the unit will restart, with the original default settings.

Firmware Updates

- 1) Locate and select the **UPDATE** option
 - a) Download the **FIRMWARE** from the website (www.ikusi.tv).
 - b) Unzip the downloaded content and place it in the root directory of a pen drive.
 - c) Connect the pen drive to the unit's USB input.

Settings

From the **SETTINGS** screen, move the button to the right to access the following menus:

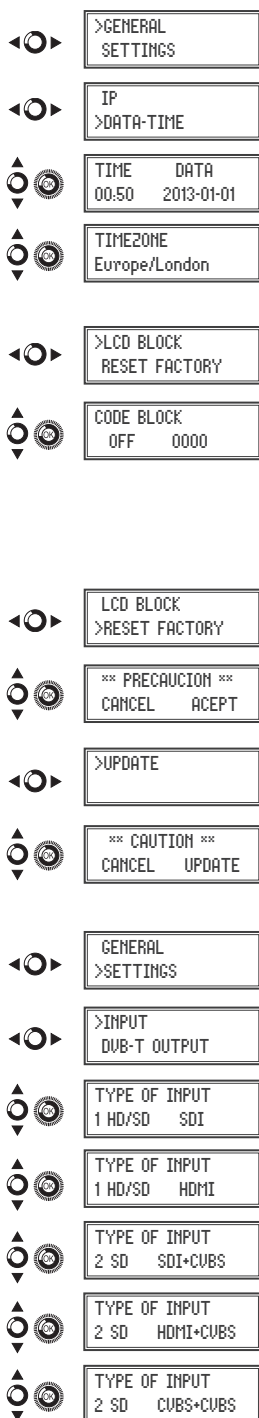
Configuration of input signals.

- 1) Locate and select the **INPUT** option.



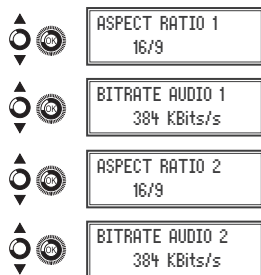
NOTE. Press the control button to the right to access one of the possible input types. Press "down" to access the settings for the following types of input signal.

- a) Locate and select the **CH1** option to check the type of input signal and detect the video (X) and audio (X). In CVBS mode, only video values will be displayed, as there is no audio detection.
- b) Locate and select one of the five possible input combinations. The MAC-HD is able to process 1 HD channel or two SD channels simultaneously.



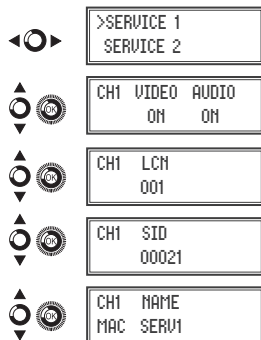
In SD mode with an HADMI or HD-SDI input, the permitted standards are SD 480i and 576i.

- c) Locate and select the option ASPECT RATIO 1 (CVBS1, HDMI, SDI) or ASPECT RATIO 2 (CVBS2). The possible aspect ratio values are 4:3 and 16:9.
- d) Locate and select the option AUDIO BITRATE 1 (CVBS1, HDMI, SDI) or AUDIO BITRATE 2 (CVBS2). The unit can be configured for a data coding speed at input or bit rate of 96; 128; 160; 192; 224; 256; 320 and 384 Kbits/s.



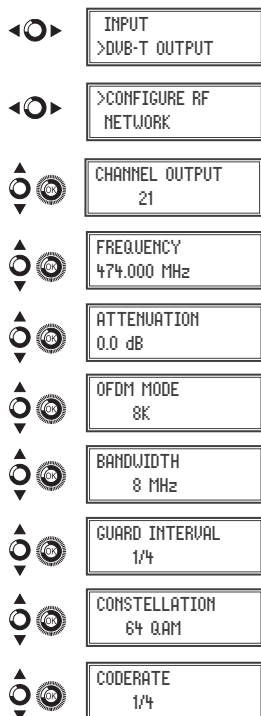
Configuration of carrier services

- 1) Locate and select the **SERVICES** option.
 - a) Locate and select the option CH VIDEO AUDIO. Activate (ON) or deactivate (OFF) the input video and/or audio signal.
 - b) Locate and select CH LCN. Set the LCN value of the signal.
 - c) Locate and select CH SID (use the output channel value). Set the Service Identifier.
 - d) Locate and select CH NAME. Assign a name to the signal on CH1. See characters table at the end of this manual.



Configuration of output signals

- 1) Locate and select **CONFIGURE RF**.
 - a) Locate and select the OUTPUT CHANNEL. This option automatically modifies the frequency, adapting it to the channels' centre.
 - b) Locate and select the FREQUENCY option. This option modified the channel's value, adapting it to the frequency. Set the output frequency value between 474 MHz and 862 MHz in steps of 125 kHz.
 - c) Locate and select the option ATTENUATION. Set the output attenuation between 0 and 25.5 dB.
 - d) Locate and select the OFDM MODE. Select the OFDM mode between 2K and 8K subcarriers.
 - e) Locate and select the BANDWIDTH option. Set the bandwidth between 6, 7 and 8 MHz.
 - f) Locate and select the GUARD INTERVAL option. Select the guard interval between 1/32, 1/16, 1/8 and 1/4 of symbol.
 - g) Locate and select the CONSTELLATION option. Select the modulation constellation between 16QAM and 64QAM.
 - h) Locate and select the CODE RATE option. Select the code rate between 1/2, 2/3, 3/4, 5/6 and 7/8.




Network configuration


- 1) Locate and select the **NETWORK** option.
 - a) Locate and select the NAME option. Configure the network name.





- b) Locate and select the PROVIDER option. Set the name of the network service provider.
- c) Locate and select the NID option. Set the network identifier value.
- d) Locate and select the TSID option. Set the transport stream identifier value or TS.
- e) Locate and select the ONID option. Set the original network identifier.
- f) Locate and select the NIT LCN MODE option. This allows you to select the mode of the NIT's LCNs :
 - OFF: no LCN descriptor is inserted in the NIT.
 - EUROPE MODE: a descriptor for Europe is inserted.
 - INDEPENDENT TELEVISION COMMISSION: a descriptor for the UK is inserted.
 - NORDIG MODE V1: a descriptor as per the Nordig V1 specification is inserted.
 - NORDIG MODE V2: a descriptor as per the Nordig V2 specification is inserted.
 - GENERIC MODE: generic LCN descriptor.
- g) Locate and select the TDT-TOT option to insert the tables that provide information pertaining to the date and time, updated according to the country's time difference or season.





OUTPUT
>DVB-T OUTPUT





CONFIGURER RF
>NETWORK



NAME
Standard



SUPPLIER
IKUSI



NID
00001



TSID
00021

ONID
00100

MODE NIT LCN
OFF

INSERT TDT-TOT
ON

TABLE OF DEFAULT PARAMETERS FOR SELECTED COUNTRY

COUNTRY	LANG.	NITMODE	LCN MODE	NID	TSID	ONID	Bandwidth	Channels	Frequencies
Australia	English	ON	Generic	1	28	8442	7 Mhz	28 - 69	526000 - 819875
France	French	ON	Europe	1	21	8442	8 Mhz	21 - 69	470000 - 861875
UK	English	ON	IndTCom(UK)	1	21	8442	8 Mhz	21 - 69	470000 - 861875
Italy	Italian	ON	Europe	1	21	8442	8 Mhz	21 - 69	470000 - 861875
Portugal	English	ON	Generic	1	21	8442	8 Mhz	21 - 69	470000 - 861875
Spain	Spanish	ON	OFF	1	21	8442	8 Mhz	21 - 69	470000 - 861875

Note:

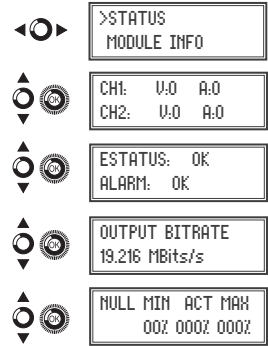
When configuring the country settings, the equipment is always configured with the first of the permitted channels, whilst the frequency will be that of the centre channel (529.5 Mhz for Australia and 474 Mhz for all others).

Unit status



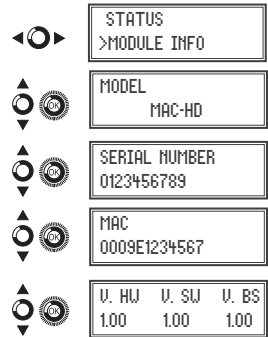
NOTE. The unit displays its status in detail along with the alarms active in the module.

- 1) Locate and select the **STATUS** option.
 - a) Locate and highlight STATUS: The unit will display its status and alarms: OK / Error.
 - b) Locate and highlight OUTPUT BITRATE. The unit will display the output data speed in Mbits/s.
 - c) Locate and highlight MIN ACT MAX NULL. The unit will display the volume of null data packets at the output, minimum, current, and maximum as a percentage of the total.



Unit information

- 1) Locate and select the **MODULE INFO** option.
 - a) Locate and highlight the MODEL option. The unit will display the unit model and version.
 - b) Locate and highlight the SERIAL NUMBER option. The unit will display the serial number.
 - c) Locate MAC. This shows the number identifying the unit for the network connection.
 - d) Locate and highlight the option V.SW V.HW V.BS. The unit displays the software version (V.SW), the hardware version (V.HW) and the start-up system (V.BS).



Unblocking the unit

The unit can be blocked, so that the display and control button cannot be used to modify the settings by anyone without the lock code/password.

To unblock the unit:

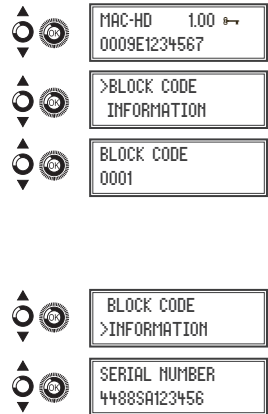
- 1) Locate and select **LOCK CODE**.
- 2) Enter the unlock password assigned by the unit operator.
- 3) The unit will display whether the password is accepted or rejected.



NOTE. The unit will remain unblocked until it is restarted or the operator deactivates the block.

To unblock the unit without the blocking password:

- 1) Locate and select **INFORMATION**.
- 2) Contact the supplier of the unit and provide the serial number. The supplier of the unit will provide an unblocking code for the stated serial number.
- 3) The unit will display whether the password has been accepted or rejected.



USB Player



NOTE. This device is used to play back videos through the USB port. Using the software, the user can draw up a personalised list of images and videos in order to create the end file ("video-final.ts"), which can then be played back through the MAC-HD modulator.

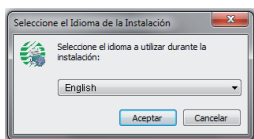
Check the firmware version of the unit, USB PLAYER option, available as of version 1.21.

Software to create videos for playback through the MAC-HD.

Users should install the software on their PC by downloading the setup file "conversor-mac-installer.exe" from the MAC-HD webpage at www.ikusi.tv.

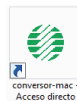
The programme will run the installation wizard.

a) Step one, language option.

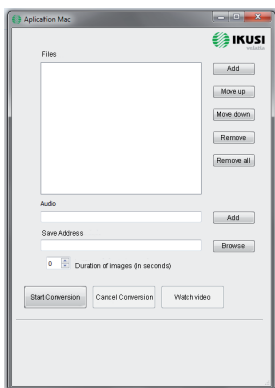


The installation wizard will prompt you to create a shortcut on the desktop (when not using the shortcut, the application is located at: "C:\aplicacion-mac\conversor-mac.exe").

Double-click the icon to run the programme.



b) The application opens a new window with the following options:



Files

Add

Insert files in the application by locating their path and clicking on the button, or by dragging and dropping them into the application window.

The following formats are valid:

- Image: jpg, png, bmp, gif
- Video: wmv, mpg, mp4, ts, avi
- Audio: mp3

- Move up** Change the order of appearance of the files in the list by selecting them and clicking on one of the buttons
- Move down**
- Remove** Delete files individually by selecting them and clicking on the button.
- Remove all** Delete the entire file list.

Audio

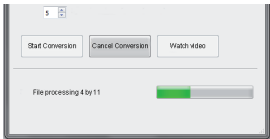
- Add** Include an audio track to play during video image sequences.

Duration of images (in seconds).

- 0** The user must indicate how long each image should remain on screen.

Save address

- Browse** Indicate where the resulting file should be saved to.
- Start Conversion** After completing the fields, click on the button for the process to show a progress bar at the bottom of the window.
- Cancel Conversion** The process can be cancelled at any time.
- Watch video** The user will be prompted when the process is complete. You can watch the video by clicking on the button, without the need for any third-party software.



The created video will always be called: “video-final.ts”; this name CANNOT be changed, otherwise Mac Home would fail to recognise it.

The application will report any requirements which may be missing when creating the video, and will also state the maximum duration of the resulting video (40 minutes max.).

The user should copy this file to a FAT32 format pen drive and insert it in the device’s USB connector.

USB Player Video playback

Playback will begin automatically when you insert the pen drive in the MAC-HD Modulator’s USB connector (wait for a seconds), without you having to access the menu, provided the “video-final.ts” file was created properly.

The USB PLAYER function overrides the modulator function. If the MAC-HD is working as a modulator, it will automatically playback the video.ts file on any pen drive you connect.

Technical specifications

Model MAC-HD (4493)

Video input		4 (non-simultaneous)
Format		(2x) CVBS, HDMI, HD-SDI
Input level (CVBS)	Vpp	0.7 - 1.4
Video standards		PAL/SECAM/NTSC/B&W
Audio input		1 (Mono and stereo)
Digital audio		Yes (HDMI, HD-SDI)
Audio input level (analog)	Vpp	0.5 - 2.5
Compression		
Video		MPEG2 MP@ML, H.264/MPEG4 AVC MP L4.1
Audio		MPEG1 layer II
Video quality		SD, HD (480i, 576i, 480p, 576p, 720p50, 720p, 1080i50, 1080i60, 1080p50, 1080p60)
Max resolution		1080p60
Output		TV digital COFDM
COFDM Standard		DVB-T as per ETSI EN 300 744
Bandwidth	MHz	6 / 7 / 8
Number of carriers		2K / 8K
MER	dB	≥ 40
Central frequency	MHz	45 - 858
Output level	dBμV	≥ 80
Output pitch attenuation	dB	0.5
Impedance	Ω	75
Frequency pitch	kHz	1
Level adjustment	dB	-25
Frequency stability	ppm	≤±30
Espurious in band	dBc	≤-60
Noise level (ΔB = 8 MHz)	dBc	≤-65
Frequency Loophthrough		45 MHz at 2.5 G

Web user interface

LCD	16x2 characters
Keyboard	Joystick 5 positions
Web	Ethernet

Processing

NIT adapted	Yes (automatically generated)
SDT adapted	Yes (entering configurable name) TS
Monitoring	Yes
PSI/SI adapted	Generation and insertion of tables PAT, PMT, SDT, NIT
NETWORK Configuration	NID, ONID, TSID, Network name, Provider
SID Configuration	Yes
LCN Treatment	Yes
TDT, TOT Treatment	Yes
EIT Treatment	Yes

Operation

Supply voltage	230 - 240 VAC
Consumption	19 W
Operating temperature	0 to 45 °C
Firmware updates	Yes, web or USB way
Video playback through USB port	

Maintenance

Unit care



HANDLING THE INSIDE OF THE UNIT IS FORBIDDEN

Do not dismantle or try to repair the unit, its accessories or its components. This will render the warranty null and void.

- Do not use the power cable if it is damaged.
- To disconnect the power cable, pull carefully on the plug and not the cable.
- To clean the panel and unit connections:
 - Unplug the unit.
 - Clean with a slightly damp, soft cloth.
 - Allow to dry completely before use.
- Do not spill liquid onto the unit.
- Keep ventilation slots free of dust and any foreign bodies.

Troubleshooting

The most frequent problems arising during unit installation are indicated below. If you encounter any other type of problem, please contact the unit sales team.

Problem	Possible cause	What to do
Forgotten unlock code	-----	Contact your supplier
Nothing appears on LCD display	The power cable is not connected properly	Check the power cable

Warranty

Notwithstanding any complaints made to the direct vendor of the product, IKUSI offers unit users a two-year warranty as of the invoice date, which shall become valid on presenting the receipt of purchase.

During the warranty period, IKUSI is responsible for any faults arising due to material or manufacturing defects and shall repair the receiver or replace it for another corresponding to the state of technology at that time. The warranty does not cover any faults or defects due to misuse or non-fulfilment of the information given in this installation manual.

All complaints other than those indicated are not included in the warranty. More specifically, the warranty does not cover services provided by the authorised vendor (e.g. installation, configuration or programme updates) or the repair of any damages or injuries caused to the client or others as a result of the installation or of receiver operations.

Unit recycling



RECYCLING OF ELECTRICAL AND ELECTRONIC EQUIPMENT

(Applicable in the European Union and in European countries with selective waste collection systems.)

This symbol on your unit or its packaging indicates that this product cannot be treated as general domestic waste and must be handed in at the corresponding point of collection for electric and electronic equipment. By ensuring this product is disposed of correctly you will help prevent negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. Recycling of materials helps preserve natural resources. For more detailed information on the recycling of this product, please contact your local council, your nearest collection point or the distributor from whom you purchased the product.

EC-Declaration of Conformity



We, Manufacturer

IKUSI, **Angel Iglesias, S.A.**
Paseo Miramón, 170
E-20009 San Sebastián, Spain

declare that the product

**AV-COFDM Autonomous Modulator
MAC-HD**

is in conformity with

**Council Directive 2004/108/CE
(EMC Directive)**

Standards to which conformity is declared :

EN 50083-2 :2007

Cabled distribution systems for television and sound signals.
Part 2: Electromagnetic compatibility for equipment.

and

**Council Directive 2006/95/CE
(Low Voltage Directive)**

Standards to which conformity is declared :

EN 60728-11 :2005

Cabled Distribution Systems for Television and Sound
Signals. Part 11: Safety Requirements.

EN 60065 :2003

Safety requirements for mains operated electronics
and related apparatus for household and similar ge-
neral use.



San Sebastián, march 2013

Luis Rodríguez Navarrete

— R&D Director —

Safety Instructions

<p>Instrucciones de Seguridad ES</p> <ul style="list-style-type: none"> - No obstruya ni cubra las ranuras de ventilación del aparato. Para que haya una ventilación correcta, deje un espacio de 20 cm alrededor. - No exponer el aparato a la lluvia o al goteo de agua. No colocar encima ningún recipiente con líquido. En caso de que un líquido cayera dentro del aparato, desconectar éste inmediatamente de la red eléctrica. - Mantenga lejos del aparato los objetos inflamables, véase y todo aquello que pudiera causar un incendio. - Siguiendo las instrucciones de instalación, fijar firmemente el aparato bien sea en la pared bien sea en la base-apoye especialmente destinada al efecto. - Conectar el aparato a una toma de tensión de red que sea fácilmente accesible, de forma que en caso de emergencia el aparato pueda ser desconectado rápidamente de la toma. - No abrir el aparato, ya que existe riesgo de descarga eléctrica. 	<p>Safety Instructions EN</p> <ul style="list-style-type: none"> - Do not block or cover the device ventilation openings. For better ventilation, leave a surrounding space of at least 20 cm. - Do not expose the device to rain or water drops. Do not put any kind of liquid container on top of it. In the event that liquid gets into the device, disconnect it immediately from the alternating current. - Keep flammable objects, candles and anything that may cause a fire away from the device. - In accordance with the installation instructions, fix the device firmly either on the wall or on the base-support specially intended for this purpose. - Connect the device to an easily accessible mains outlet, so that the device may be quickly disconnected from the outlet in case of emergency. - Do not open the device, there is a risk of electric shock. 	<p>Instructions de sécurité FR</p> <ul style="list-style-type: none"> - Ne bloquez ni ne couvrez les orifices d'aération de l'appareil. - Pour une meilleure ventilation, laissez tout autour un espace d'environ 20 cm. - N'exposez pas l'appareil à la pluie ou aux gouttes d'eau. Ne mettez aucun type de récipient pour liquides sur l'appareil. En cas de renversement de liquide à l'intérieur de l'appareil, débranchez-le immédiatement. - Gardez les objets inflammables, les bougies et tout élément susceptible de provoquer un incendie loin de l'appareil. - Conformément aux instructions d'installation, fixez l'appareil fermement au mur ou au support spécialement prévu à cet effet. - Branchez l'appareil à une prise de courant facilement accessible, de sorte que l'appareil puisse être rapidement débranché en cas d'urgence. - N'ouvrez pas l'appareil afin d'éviter tout risque d'électrocution.
<p>Instruções de Segurança PT</p> <ul style="list-style-type: none"> - Não bloqueie nem cubra as aberturas de ventilação do aparelho. Para uma ventilação melhor, deixe pelo menos 20 cm de espaço à volta do dispositivo. - Não exponha o aparelho à chuva ou a gotas de água, nem coloque por cima nenhum recipiente com líquido dentro. Caso entre água no aparelho, retire imediatamente a ficha da tomada. - Afaste objetos inflamáveis, velas e qualquer coisa que possa provocar um incêndio. - Seguindo as instruções de instalação, fixe bem o aparelho na parede ou no suporte especialmente destinado para esse efeito. - Ligue o aparelho a uma tomada elétrica de acesso fácil de forma que possa ser rapidamente desligado da tomada em caso de emergência. - Não abra o aparelho, visto que pode provocar risco de descargas elétricas. 	<p>Sicherheitshinweise DE</p> <ul style="list-style-type: none"> - Die Belüftungsöffnungen des Geräts nicht blockieren oder abdecken. Für eine korrekte Belüftung mindestens 20 cm Abstand um das Gerät einhalten. - Das Gerät weder Regen noch Wassertropfen aussetzen. Keine Flüssigkeitsbehälter auf dem Gerät abstellen. Bei Eindringen von Flüssigkeit in das Gerät, dieses sofort von der Wechselstromversorgung trennen. - Brennbare Objekte, Kerzen und andere mögliche Brandstifter von dem Gerät fernhalten. - Das Gerät entsprechend den Installationsanweisungen stabil an der Wand oder auf dem speziell für diesen Zweck ausgelegten Stützbock befestigen. - Das Gerät an eine leicht zugängliche Steckdose anschließen, so dass dieses im Notfall schnell von der Steckdose getrennt werden kann. - Das Gerät nicht öffnen, es besteht Stromschlaggefahr! 	<p>Инструкции по безопасности RU</p> <ul style="list-style-type: none"> - Не заслонять и не накрывать вентиляционные отверстия устройства. Для обеспечения правильной вентиляции оставьте по меньшей мере 20 см свободного пространства вокруг устройства. - Не подвергать устройство воздействию влаги или попадания капли воды; золью, не ставить на устройство никаких емкостей с жидкостью. В случае попадания жидкости внутрь устройства, немедленно отключите его от сети переменного тока. - Не размещать рядом с устройством легко воспламеняющиеся предметы, свечи, свечки и т.п. которые могут спровоцировать пожар. - Следуя инструкциям по установке, надежно закрепить устройство на стене или на специально созданной специально предназначенной для этой цели. - Подключить устройство к розетке, к которой можно быстро добраться, так, чтобы устройство можно было быстро отключить от сети в экстренных случаях. - Не открывать устройство, так как существует риск поражения электрическим током.
<p>Veiligheidsinstructies NL</p> <ul style="list-style-type: none"> - U mag de ventilatieopeningen van het apparaat niet blokkeren of bedekken. Voor betere ventilatie dient u minimaal 20 cm ruimte eromheen vrij te houden. - Stel het apparaat niet bloot aan regen of waternodruppels. Plaats er geen vloeistofverpakkingen op. In geval er vloeistof in het apparaat komt, dient u het onmiddellijk van de wisselstroom af te sluiten. - Houdd brandbare voorwerpen, kaarsen en/of vuurwerf dat brand kan veroorzaken, uit de buurt van het apparaat. - Volg de installatie-instructies op. Plaats het apparaat stevig aan de muur of op de basisconstructie, welke hiervoor is bestemd. - Sluit het apparaat aan op een eenvoudig te bereiken stopcontact, zodat u in geval van nood het apparaat snel uit het stopcontact kunt halen. - Maak het apparaat niet open. U riskeert hier elektrische schokken mee. 	<p>Istruzioni di sicurezza IT</p> <ul style="list-style-type: none"> - Non ostruire né coprire le aperture di ventilazione dell'apparecchio. Per una migliore ventilazione, lasciare attorno uno spazio libero d'almeno 20 cm. - Non esporre l'apparecchio alla pioggia o a gocciolamento d'acqua. Non appoggiare sulla superficie superiore container di liquido. Nel caso penetrasse del liquido nell'apparecchio, scollegarlo immediatamente dalla rete di corrente elettrica alternativa. - Mantenere lontani dall'apparecchio gli oggetti infiammabili. Le candele o qualsiasi cosa possa causare un incendio. - Seguendo le istruzioni di installazione, fissare saldamente l'apparecchio all'unità o all'apposita base di supporto. - Collegare l'apparecchio ad una presa di corrente facilmente accessibile, in modo da poterla scollegare velocemente dalla presa in caso di emergenza. - Non aprire l'apparecchio. Periodo di scarica elettrica. 	<p>Οδηγίες ασφαλείας EL</p> <ul style="list-style-type: none"> - Μην κλείνετε και μην καλύπτετε τα ανοίγματα εξαερισμού της συσκευής. Για καλύτερη εξαερισμό, αφήστε γύρω τουλάχιστον 20 εκ. γύρω της. - Μην εκθέτετε τη συσκευή στη βροχή ή σε σταγόνες νερού. Μην τοποθετείτε κοντά της δοχεία με υγρό ή οποιαδήποτε υγρό αντικείμενα. Σε περίπτωση που διαρρεύσει υγρό στη συσκευή, αποσυνδέστε την αμέσως από το εναλλασσόμενο ρεύμα. - Διατηρείτε μακριά από τη συσκευή εύφλεκτα υλικά, κεριά και οποιαδήποτε μπορεί να προκαλέσει πυρκαγιά. - Ακολουθώντας τις οδηγίες εγκατάστασης, στερεώστε σταθερά τη συσκευή είτε στον τοίχο είτε στην ειδική γι' αυτό το σκοπό βάση στηρίξης. - Συνδέτε τη συσκευή σε εύκολα προσεγγίσιμη πρίζα ηλεκτρικού ρεύματος, έτσι ώστε η συσκευή να μπορεί να αποσυνδεθεί γρήγορα από την πρίζα σε περίπτωση έκτακτης ανάγκης. - Μην ανοίγετε τη συσκευή, γιατί υπάρχει κίνδυνος ηλεκτροπληξίας.
<p>Instrukcja bezpieczeństwa PL</p> <ul style="list-style-type: none"> - Nie należy blokować lub zakrywać otworów wentylacyjnych urządzenia. Aby uzyskać lepszą wentylację, należy pozostawić co najmniej 20 cm wolnego miejsca wokół urządzenia. - Nie należy wystawiać urządzenia na działanie deszczu lub wody. Nie należy na nie stawiać żadnych pojemników z płynem. W przypadku napełnienia pływ do wnętrza urządzenia, należy je natychmiast odłączyć od źródła prądu zmiennego. - W pobliżu urządzenia nie należy stawiać żadnych łatwopalnych przedmiotów, świec lub innych rzeczy, które mogą wywołać pożar. - Zgodnie z instrukcją montażu, należy przymocować urządzenie należycie do ściany lub na podstawie przeznaczoną do tego celu. - Urządzenie należy przyłączyć do łatwo dostępnego gniazda elektrycznego, które umożliwia szybkie odłączenie urządzenia w nagłym przypadku. - Nie należy otwierać obudowy urządzenia, istnieje zagrożenie porażenia elektrycznego. 	<p>Turvahojeht FI</p> <ul style="list-style-type: none"> - Älä peitä laitteiden tuuletusaukkoja. Älä vähintään 20 cm alla laiteen ympärillä jättä tuuletusta varten tilaa. - Älä altista laitteita sateelle tai vedelle. Älä aseta mitään nesteä sisältäviä astioita sen päälle. Jos nestettä pääsee laitteen sisään, kytke se välittömästi irti pistokkeesta. - Pidä kaikki palstava esineet, kuten kynttilät ja muut pöytä valon tynnyrit tulopain, pois laitteiden läheltä. - Nautustien asennustavan, kiinnitys laite tukevalle seinälle tai vahvistetulle jalkastun. - Kytke laite pistokkeeseen johon on helppo päästä jotta laite voidaan kytkeä irti nopeasti pistokkeesta hätätilanteissa. - Älä avaa laitteita sähkökuvastaan takaa. 	<p>Bezpečnostní pokyny CS</p> <ul style="list-style-type: none"> - Neomezujte přístup k větracím otvorům zařízení ani je nezakrývejte. Pro lepší větrání nechte kolem přístroje volný prostor nejméně 20 cm. - Nevystavujte zařízení dešti nebo kapátkům vody. Nestavte na něj žádné nádobky obsahující kapalinu. V případě, že se do zařízení dostane voda, okamžitě je odpojte od síťového napájení. - V blízkosti přístroje, svíčky a cokoliv, co by mohlo způsobit požár, neumisťujte do blízkosti zařízení. - Postupujte podle pokynů pro instalaci a zařízení řádně upevněte na zeď nebo umístěte na podstavce určený speciálně k tomu účelu. - Zářiče připojte ke snadno přístupné síťové zásuvce, aby v případě nouze bylo možné je rychle odpojit. - Neotvírejte zařízení, jinak hrozí nebezpečí úrazu elektrickým proudem.
<p>Sikkerhedsanvisninger DA</p> <ul style="list-style-type: none"> - Blokér ikke tilføje ikke anordningens ventilationsåbninger. Lad der være mindst 20 cm frit rum omkring den af hensyn til bedre ventilation. - Udsæt ikke anordningen for regn eller vanddråber. Anbring ikke nogen form for væskebeholder på den. I tilfælde af, at der kommer væske ind i anordningen, skal den omgående frakobles elektrisknetet. - Hold brandbare genstande, stearlys og alt, hvad der kan forårsage brand, væk fra anordningen. - Ikt installeringsanvisningerne følges, fastgøres anordningen sikkert på væggen eller på den bælteskærm, som er specielt beregnet til dette formål. - Tilslut anordningen til et lettilgængeligt lysnetkontakt, så anordningen hurtigt kan frakobles stikkontakten i en nødsituation. - Luk ikke anordningen op. Der er risiko for elektrisk stød. 	<p>Bezpečnostní pokyny SK</p> <ul style="list-style-type: none"> - Neobmedzujte prístup k vetracím otvorom zariadenia ani ich nezakrývajte. Pre lepšie vetranie nechajte okolo zariadenia voľný priestor najmenej 20 cm. - Nevystavujte zariadenie dažďu alebo kvapkajúcej vode. Nechávajte na zariadenie žiadne nádoby obsahujúce kvapalinu. V prípade, že sa do zariadenia dostane voda, okamžite ho odpojte od sieťového napájania. - V blízkosti prístroja, sviečky a cokoliv, čo by mohlo spôsobiť požiar, neumisťujte do blízkosti zariadenia. - Postupujte podľa pokynov na inštaláciu a zariadenie riadne upevnite na stenu alebo umiestnite na podstavce určený špeciálne na tento účel. - Zariadenie pripojte k ľahko prístupnej sieťovej zásuvke, aby ho bolo možné v prípade nebezpečenstva rýchlo odpojiť. - Neotvárajte zariadenie, inak hrozí nebezpečenstvo úrazu elektrickým prúdom. 	<p>Varnostna navodila SL</p> <ul style="list-style-type: none"> - Ne prekrivajte ali blokirajte prezračevalnih odprtin na napravi. Za boljšo prezračevanje pustite okoli naprave 20 cm prostora od naprave. - Ne izpostavljajte naprave na dež ali vodo. Na napravo ne postavljajte posode z tekočino. Če tekočina pride v napravo, jo takoj odklopite iz omrežnega napajanja. - Naprave ne približujte vžgljnim predmetom, svečam ali nekaj kar lahko povzroči požar. - Po navodilih za montažo naprave natančno priročno na zid ali podstavek, ki je za to namenjen. - Napravo priključite v enostavno dostopno vtičnico, da jo lahko v primeru nevarnosti hitro odklopite. - Naprave ne odpirajte - obstaja nevarnost električnega udara.
<p>Droftbas Instrukcja LV</p> <ul style="list-style-type: none"> - Neapstraujiet vai neapklājiet ierīces ventilācijas atveres. Labāka ventilācijai atstājiet vietas 20 cm apmērā ap ierīci. - Nepieļaujiet ierīci lietam vai ūdens pilieniem. Nelieciet uz tā šķidruma saturus traukus, gadījumā, ja ūdens iegriezt ierīcē, nekavējoties atvienojiet to no mātespietī. - Neturiet ierīci tuvu ugunsizraisošajiem objektiem, sveces un citiem priekšmetiem, kas var aizdedzties. - Saskaņot uzstādīšanas instrukciju, cieši piestipriniet ierīci vai to pie sienas, vai nu uz pamata, kas īpaši domāts šim nolikt. - Pievienojiet ierīci viļņi pieejamajai jaudas padevei iekārtā, lai ierīci varētu ātri atvienot no padeves galoties nepieciešamības gadījumā. - Neatveriet ierīci, pastāv risks apņemt elektriskā šoka. 	<p>Saugumo taikytys LT</p> <ul style="list-style-type: none"> - Nėdondinėte įrenginio ventiliacinių angų. Lygiavertį įrenginį bent 20 cm atstumo nuo kito objektų dėl geresnės ventiliacijos. - Saugokite įrenginį nuo lietaus ar vandens lašų. Nėdėkite jokiai daiktui su skystu ar įrenginio. Jei įrenginio viduje patenks skystas, tuoj atjunkite jį nuo tinkamosios maitinimo. - Laikykite degius daiktus, žvakės ir viską, kas gali sukelti gaisrą, toli nuo įrenginio. - Laikykis patalpinimo instrukcijos, tvirtai pritvirtinkite įrenginį tvirtai prie sienos arba prie pagrindės, specialiai sukurtos šiam tikslui. - Pritvirtinkite įrenginį prie lengvai prieinamos pajungimo išdėty, kad galėtum greitai atjungti įrenginį atėjusios įvykių. - Nėdėdarykite įrenginio, gali sukelti elektros šoką. 	<p>Strussinjelet dja is-Sigurtà MT</p> <ul style="list-style-type: none"> - M'għaddja l-impostazzjoni jew l-għatir l-ihna l-ventilazzjoni l-iqtašgħi. Għall-ventilazzjoni aħjar, lallja spazju ta' m'indus ammin 20 cm madwaru. - M'għaddja l-iqtašgħi għall-istess jekk tneqter l-istess. Nidheret li ma postgħallja posod ta' likwidu ta' likwidu fuq. Fihaz ta' likwidu jidher l-iqtašgħi, skommetta minnha mill-kontatt tal-istess. - Zomm oggettji fiammabbli, fihaz u kull għajja li tista' tikkawja xi nar l' bogħod mill-iqtašgħi. - Wara l-ħarsuzinjelet ta' installazzjoni, wabbhal l-iqtašgħi sew jew mal-ħajj jew fuq il-pedestall mal-ħabub speċifikazzjoni għal dan l-għajh. - Ikonneta l-iqtašgħi mal- provvista tad fiamment accessible, sabiex l-iqtašgħi tkun jekk tneqter minnha minnha mill-kontatt tal-istess. - M'għaddja l-iqtašgħi l-iqtašgħi. Hemm riskju ta' shock elettriku.
<p>Biztonsági előírások HU</p> <ul style="list-style-type: none"> - Ne zárolja és ne fedje le a készülék szellőztető nyílását. A megfelelőbb szellőztetés érdekében, hagyjon legalább 20 cm-es nyíltságot a készülék körül. - A készüléket ne tegye ki eső vagy vízcsapadék hatásának. Ne helyezzen rá semmilyen folyadék tartályt. Ha a készüléket folyadék kerül, azonnal válassza le a villáskötő szálvezetést. - Tartsa távol a készüléket a gyúlékony tárgyakat, gyertyákat és bármilyen éghető, mely tüzet okozhat. - A készüléket szellőztetői körvétel, biztonságosan rögzítse a készüléket a falra, vagy az erre szánt állványra. - Csatlakoztassa a készüléket egy könnyen hozzáférhető hálózati csatlakozóhoz, mely segítségével azonnal kikapcsolhatja a készüléket gyors beavatkozáskor. - A készüléket tilos kinyitni, mert életveszélyes veszély áll fenn. 	<p>Ohutusjuhend ET</p> <ul style="list-style-type: none"> - Seadme kaitse õh ventilatsioonivõrdsid ei tohi kinni katta. Parimaks ventilatsiooniks peab seadme ümber olema vähemalt 20 cm vaba ruumi. - Ärge jätta seadet veele, vihmale või muule vedele. Ärge asetada seadmele vedelike sisaldavaid konteinereid. Juhul, kui vedelik satub seadmesse, tule seadme viivitamatult vooluvõrgust lahutada. - Veeend, et tuleohutusüksused (küünlad ja teised objektid, mis võivad tekitada tulekahju) jääksid seadmele piisavalt kaugel. - Järgides paigaldusjuhend kinnitage seade kindlalt seinale või spetsiaalselt sellele mõeldud alusele. - Ühendage toidevõrgu kergele ligipääsetavale kohale pistikupesale, et hädajuhul korral võiks võrkvõrki seadme kiiresti vooluvõrgust lahti ühendada. - Õhukõrget vältimiseks äge avage seadme kaitse. 	<p>Säkerhetsanvisningar SV</p> <ul style="list-style-type: none"> - Ventilationsöppningar på enheten får inte blockeras eller täckas över. För att uppnå en bättre ventilation bör minst 20 cm fri utrymme lämnas runt enheten. - Utsätt inte enheten för regn eller vattendroppar. Placera aldrig någon form av vätskebehållare på den. Om vätska skulle komma in i enheten, bör strömkablaget brytas av från nätslutsen. - Brännbara föremål, stearljys och alla andra föremål som kan orsaka brand får inte förvaras nära enheten. - Följ installationsanvisningarna och montera enheten aningen på väggen eller på det ställ som är särskilt avsett för ändamålet. - Anslut enheten till ett lättillgängligt nätslutsningsuttag, så att enheten snabbt kan kopplas ur vid en eventuell nödsituation. - Öppna inte enheten eftersom det föreligger risk för elektrisk shock.



Ángel Iglesias, S.A.
Paseo Miramón, 170
20014 San Sebastián, Spain
Tel. +34 943 44 88 00
Fax +34 943 44 88 20
television@ikusi.com
www.ikusi.tv